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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,875	09/29/2003	David Allen Kastrup	13DV-13988-2	2342
7590	05/03/2005		EXAMINER	
John S. Beulick Armstrong Teasdale LLP Suite 2600 One Metropolitan Square St. Louis, MO 63102			KIM, TAE JUN	
			ART UNIT	PAPER NUMBER
			3746	
DATE MAILED: 05/03/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/673,875	<b>Applicant(s)</b> KASTRUP ET AL.	
	<b>Examiner</b> Ted Kim	<b>Art Unit</b> 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 March 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 8-19 is/are pending in the application.
- 4a) Of the above claim(s) 13-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Claims 13-19 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 03/01/2005.

The traversal is on the ground(s) that the groups I and II are related and restriction is not mandatory by "35 U.S.C.". This is not found persuasive because while there is some interrelationship in the claimed inventions, they are patentably distinct for the reasons previously set forth and search and examination of both groups constitutes a serious burden.

The requirement is still deemed proper and is therefore made FINAL.

### ***Response to Amendment***

2. The amendment to the claims filed 09/29/2003 indicates claims 1-8 as canceled but it appears that applicant intended claims 1-7 to be canceled.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 8-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Halila (5,353,587). Halila teaches a combustor for a gas turbine engine, said combustor comprising a spectacle (or dome) plate 16, 18, and a plurality of swirlers 26 attached to said spectacle (or dome) plate, *assembling said combustor comprising: coupling an assembly fixture to at least one said swirler; removably coupling each respective assembly fixture to the spectacle plate to maintain an alignment of each said respective swirler with respect to said spectacle plate; and uncoupling each respective assembly from said spectacle plate after each said swirler is attached to said spectacle plate; a plurality of deflector plates (unlabeled but to the right of 16 in the Figures) comprising an opening extending therethrough, assembling said combustor further comprising attached said plurality of deflector plates to said spectacle plate such that each said deflector plate opening substantially concentrically aligned with each respective said swirler; each said swirler is welded to said spectacle plate prior to uncoupling each respective assembly fixture; assembling said combustor further comprises: positioning a first of said deflector plates against said spectacle plate; positioning a second of said deflector plates against said spectacle plate and circumferentially adjacent said first deflector plate; and removably coupling an alignment fixture between said first and second deflector plates to maintain a position of said first and second deflector plates with respect to said spectacle*

*plate; each said deflector plate brazed to said spectacle plate, assembling said combustor further comprising removing each respective alignment fixture after said first and second deflector plates are secured to said spectacle plate.* The italicized limitations are product by process limitations where it is noted that the patentability of these claims is determined on the basis of the product formed and not the method by which it is produced *Ex parte Junger, 18 USPQ2d 1796 (BPAI 1991).*

“Patentability of claim to apparatus does not rest merely on difference in method by which apparatus operates or produces product; rather, it is apparatus itself that must be new and unobvious; however, if claim contains structural limitations sufficient to distinguish claim from prior art and meet novelty and nonobviousness requirements, addition of further process limitations does not preclude patentability.”

5. Claims 8-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Koshoffer et al (5,239,832). Koshoffer teaches a combustor for a gas turbine engine, said combustor comprising a spectacle (or dome) plate 28, and a plurality of swirlers 48 attached to said spectacle (or dome) plate, *assembling said combustor comprising: coupling an assembly fixture to at least one said swirler; removably coupling each respective assembly fixture to the spectacle (or dome) plate to maintain an alignment of each said respective swirler with respect to said spectacle plate; and uncoupling each respective assembly from said spectacle plate after each said swirler is attached to said spectacle plate; a plurality of deflector plates 44 or 42 comprising an opening extending*

*therethrough, assembling said combustor further comprising attached said plurality of deflector plates to said spectacle plate such that each said deflector plate opening substantially concentrically aligned with each respective said swirler; each said swirler is welded to said spectacle plate prior to uncoupling each respective assembly fixture; assembling said combustor further comprises: positioning a first of said deflector plates against said spectacle plate; positioning a second of said deflector plates against said spectacle plate and circumferentially adjacent said first deflector plate; and removably coupling an alignment fixture between said first and second deflector plates to maintain a position of said first and second deflector plates with respect to said spectacle plate; each said deflector plate brazed to said spectacle plate, assembling said combustor further comprising removing each respective alignment fixture after said first and second deflector plates are secured to said spectacle plate.* The italicized limitations are product by process limitations where it is noted that the patentability of these claims is determined on the basis of the product formed and not the method by which it is produced *Ex parte Junger, 18 USPQ2d 1796 (BPAI 1991).*

“Patentability of claim to apparatus does not rest merely on difference in method by which apparatus operates or produces product; rather, it is apparatus itself that must be new and unobvious; however, if claim contains structural limitations sufficient to distinguish claim from prior art and meet novelty and nonobviousness requirements, addition of further process limitations does not preclude patentability.”

6. Claims 8-12 are rejected under 35 U.S.C. 102(a or e) as being anticipated by Thompson et al (6,212,870). Thompson et al teach a combustor for a gas turbine engine, said combustor comprising a spectacle (or dome) plate 36, and a plurality of swirlers 56, 60 attached to said spectacle (or dome) plate, *assembling said combustor comprising: coupling an assembly fixture to at least one said swirler; removably coupling each respective assembly fixture to the spectacle (or dome) plate to maintain an alignment of each said respective swirler with respect to said spectacle plate; and uncoupling each respective assembly from said spectacle plate after each said swirler is attached to said spectacle plate; a plurality of deflector plates 76 comprising an opening extending therethrough, assembling said combustor further comprising attached said plurality of deflector plates to said spectacle plate such that each said deflector plate opening substantially concentrically aligned with each respective said swirler; each said swirler is welded to said spectacle plate prior to uncoupling each respective assembly fixture; assembling said combustor further comprises: positioning a first of said deflector plates against said spectacle plate; positioning a second of said deflector plates against said spectacle plate and circumferentially adjacent said first deflector plate; and removably coupling an alignment fixture between said first and second deflector plates to maintain a position of said first and second deflector plates with respect to said spectacle plate; each said deflector plate brazed to said spectacle plate, assembling said combustor further comprising removing each respective alignment fixture after said first and second deflector plates are secured to said spectacle plate.* The italicized limitations are product

by process limitations where it is noted that the patentability of these claims is determined on the basis of the product formed and not the method by which it is produced *Ex parte Junger*, 18 USPQ2d 1796 (BPAI 1991).

“Patentability of claim to apparatus does not rest merely on difference in method by which apparatus operates or produces product; rather, it is apparatus itself that must be new and unobvious; however, if claim contains structural limitations sufficient to distinguish claim from prior art and meet novelty and nonobviousness requirements, addition of further process limitations does not preclude patentability.”

7. Claims 8-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Freidauer et al (6,502,400) and under 35 USC 102(b) as being anticipated by its WO equivalent WO 200190652. For conciseness all citations are from the US reference. Freidauer et al teach a combustor for a gas turbine engine, said combustor comprising a spectacle (or dome) plate, and a plurality of swirlers attached to said spectacle (or dome) plate, assembling said combustor comprising: coupling an assembly fixture to at least one said swirler; removably coupling each respective assembly fixture to the spectacle (or dome) plate to maintain an alignment of each said respective swirler with respect to said spectacle plate; and uncoupling each respective assembly from said spectacle plate after each said swirler is attached to said spectacle plate; a plurality of deflector plates comprising an opening extending therethrough, assembling said combustor further comprising attached said plurality of deflector plates to said spectacle plate such that each said deflector plate opening substantially concentrically aligned with each respective said



swirler; each said swirler is welded to said spectacle plate prior to uncoupling each respective assembly fixture; assembling said combustor further comprises: positioning a first of said deflector plates against said spectacle plate; positioning a second of said deflector plates against said spectacle plate and circumferentially adjacent said first deflector plate; and removably coupling an alignment fixture between said first and second deflector plates to maintain a position of said first and second deflector plates with respect to said spectacle plate; each said deflector plate brazed to said spectacle plate, assembling said combustor further comprising removing each respective alignment fixture after said first and second deflector plates are secured to said spectacle plate. The process steps appear to be taught by Freidauer et al in the background of the invention.

“(2) This invention relates generally to gas turbine engines and more particularly to combustor dome assemblies used in such engines.

(3) A gas turbine engine includes a compressor that provides pressurized air to a combustor wherein the air is mixed with fuel and burned for generating hot combustion gases. These gases flow downstream to one or more turbines that extract energy therefrom to power the compressor and provide useful work such as powering an aircraft in flight. Combustors used in aircraft engines typically include inner and outer combustion liners joined at their upstream ends to a dome assembly. The dome assembly includes an annular spectacle plate and a plurality of circumferentially spaced swirler assemblies mounted therein for introducing the fuel/air mixture to the combustion chamber. Each swirler assembly has a deflector extending downstream therefrom for preventing excessive dispersion of the fuel/air mixture and shielding the spectacle plate from the hot combustion gases of the combustion chamber.

(4) Typically, the swirler assemblies, deflectors and spectacle plate are joined together by a technique such as **brazing**. In one conventional dome assembly, the outer diameter of the swirler assembly is brazed into an opening in the spectacle plate in one operation, and the deflector is brazed into the inner diameter of the swirler assembly in another operation. The manufacture of such a dome assembly requires several time consuming procedures, utilizes multiple fixtures and many expensive materials, and is relatively labor intensive. For instance, in the first operation, the swirler assembly is fixtured to the spectacle plate using a special fixture so that the swirler assembly can be tack welded to the spectacle plate. The tack weld fixture is then removed and a stop-off paste is applied to the spectacle plate. Next, a braze alloy paste is placed in the gap between the swirler

assembly and the spectacle plate opening. The assembly is then heated to a temperature exceeding the braze alloy melting point such that the braze alloy melts and fills the gap. The assembly is then allowed to cool so that the braze alloy solidifies and joins the swirler assembly to the spectacle plate.

(5) In the second operation, stop-off material and two forms of braze alloy (sinter braze tape and braze rope) are applied to the deflector. The deflector is then fixtured into the swirler assembly/spectacle plate sub-assembly using another fixture. Milk of magnesia is applied to this fixture to prevent seizing during subsequent heating. This assembly is then heated to a temperature exceeding the braze alloy melting point such that the braze alloy melts and fills the swirler assembly/deflector interface. The assembly is then allowed to cool so that the braze alloy solidifies and joins the deflector to the swirler assembly. The fixture is then removed. (col. 1, lines 11 - 62)"

### *Claim Rejections - 35 USC § 103*

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of Halila (5,353,587), Koshoffer et al (5,239,832) and Thompson et al (6,212,870) in view of Freidauer et al (6,502,400) or its WO equivalent WO 200190652. The applied Halila, Koshoffer et al and Thompson et al teach the structure of the claims but do not teach using a fixture and the other assembling steps. Freidauer et al (col. 1, lines 11-62) and its WO equivalent WO 200190652 teach using a fixture that is coupled and uncoupled and the other assembly steps. It would have been obvious to one of ordinary skill in the art to employ a fixture to perform the coupling and assembly of the combustor/swirler arrangement as the conventional practice in the art.

*Contact Information*

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Ted Kim whose telephone number is 571-272-4829. The Examiner can be reached on regular business hours before 5:00 pm, Monday to Thursday and every other Friday.

The fax numbers for the organization where this application is assigned are 703-872-9306 for Regular faxes and 703-872-9306 for After Final faxes.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler, can be reached on 571-272-4834.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist of Technology Center 3700, whose telephone number is 703-308-0861. General inquiries can also be directed to the Patents Assistance Center whose telephone number is 800-786-9199. Furthermore, a variety of online resources are available at <http://www.uspto.gov/main/patents.htm>



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